

WHAT IS CLAIMED IS:

1. A permanent-magnet synchronous motor comprising:

a stator, comprising:

a cylindrical stator core in which $3n$ teeth are disposed at a predetermined pitch in a circumferential direction where n is a positive integer, slots being formed between adjacent pairs of said teeth so as to open onto an inner circumferential side; and

a stator coil installed as a concentrated winding in said stator core; and

a rotor rotatably disposed inside said stator, $2n$ permanent magnets being disposed at a predetermined pitch in a circumferential direction on an outer peripheral portion of said rotor,

wherein said stator core is constructed such that a slot opening (d) and a slot pitch (p) at an inner circumferential surface of said stator core satisfy an expression $0.1 \leq d/p \leq 0.3$.

2. The permanent-magnet synchronous motor according to Claim 1, wherein:

said motor is constructed so as to be driven by applying a rectangular-wave driving voltage to said stator coil.

3. A permanent-magnet synchronous motor comprising:

a stator, comprising:

a cylindrical stator core in which $3n$ teeth are disposed at a predetermined pitch in a circumferential direction where n is a positive integer, slots being formed between adjacent pairs of said teeth so as to open onto an inner circumferential side; and

a stator coil installed as a concentrated winding in said stator core, and

a rotor rotatably disposed inside said stator, $2n$ permanent magnets being disposed at a predetermined pitch in a circumferential direction on an outer peripheral portion of said rotor,

wherein said stator core is constructed such that a slot opening (d) and a thickness (h) of first and second circumferential end portions on an inner circumferential end of said teeth satisfy an expression $0.2 \leq h/d \leq 0.7$.

4. The permanent-magnet synchronous motor according to Claim 3, wherein:

said motor is constructed so as to be driven by applying a rectangular-wave driving voltage to said stator coil.

5. A permanent-magnet synchronous motor comprising:
a stator, comprising:

a cylindrical stator core in which $3n$ teeth are disposed at a predetermined pitch in a circumferential direction where n is a positive integer, slots being formed between adjacent pairs of said teeth so as to open onto an inner circumferential side; and

a stator coil installed as a concentrated winding in said stator core, and

a rotor rotatably disposed inside said stator, $2n$ permanent magnets being disposed at a predetermined pitch in a circumferential direction on an outer peripheral portion of said rotor,

wherein said stator core is constructed such that a slot opening (d), a slot pitch (p) at an inner circumferential surface of said stator core, and a thickness (h) of first and second circumferential end portions on an inner circumferential end of said teeth satisfy an expression $0.1 \leq d/p \leq 0.3$ and an expression $0.2 \leq h/d \leq 0.7$.

6. The permanent-magnet synchronous motor according to Claim 5, wherein:

said motor is constructed so as to be driven by applying a rectangular-wave driving voltage to said stator coil.